

WHAT IS CLAIMED IS:

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1. A bearer integration method for integrating a plurality of bearer services into a wireless channel by performing time-division multiplexing/demultiplexing, said bearer integration method comprising the steps of:

inputting bearer service data in synchronization with reference frame timing of a period T in a sending side;

15       delaying said bearer service data by one frame period by allocating delays A ( $0 \leq A \leq T$ ) and A' ( $=T-A$ ) between the sending side and a receiving side;

outputting said bearer service data in the receiving side; and

20       integrating said bearer service data into a wireless channel with another bearer service data in which delays B ( $A \leq B \leq T$ ) and B' ( $=T-B$ ) are allocated between the sending side and the receiving side.

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2. The bearer integration method as  
30       claimed in claim 1, wherein, when integrating bearer services in which each bearer service has different delay allocation, said bearer services are integrated into a wireless channel which has a delay equal to or larger than the maximum delay in said  
35       bearer services.

3. The bearer integration method as claimed in claim 1, wherein two kinds and two  
5 systems of delay allocation are set for each bearer service, said bearer integration method further comprising the step of:

integrating one or more bearer services having any delay allocation into another bearer  
10 service having any delay allocation.

15 4. A bearer integration method for integrating a plurality of bearer services into a wireless channel by performing time-division multiplexing/demultiplexing, said bearer integration method comprising the steps of:

20 inputting bearer service data in synchronization with reference frame timing of a period T in a sending side;

delaying said bearer service data by two frame period by allocating delays A ( $0 \leq A \leq T$ ) and A' ( $=2T-A$ ) between the sending side and a receiving  
25 side;

outputting said bearer service data in the receiving side; and

30 integrating said bearer service data into a wireless channel in which delays T+B ( $0 \leq B \leq T$ ) and B' ( $=T-B$ ) are allocated between the sending side and the receiving side.

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5. The bearer integration method as

claimed in claim 4, further comprising the step of:

integrating bearer services in which each bearer service has different delay allocation such as A ( $0 \leq A \leq T$ ),  $A' (=2T-A)$  and B ( $0 \leq B \leq T$ ),  $B' (=2T-B)$  into a wireless channel C in which delays  $T+C$  ( $0 \leq C \leq T$ ) and  $C' (=T-C)$  are allocated.

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6. The bearer integration method as claimed in claim 5, wherein two kinds and two systems of delay allocation are set for each bearer service, said bearer integration method further comprising the steps of:

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delaying, in the sending side, the first bearer frame which is input after bearer integration timing by a period  $T+C$ , delaying bearer frames after the second bearer frame by a period C as for a bearer service A in said bearer services;

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delaying, in the sending side, bearer frames after the third bearer frame which is input after bearer integration timing by a period C as for another bearer service B in said bearer services,

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integrating bearer services A and B into said wireless channel C and sending integrated data;

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delaying, in the receiving side, the first bearer frame by a period  $T-C$ , delaying said bearer frames after the second bearer frame by a period  $2T-C$ , and outputting these bearer frames; and

delaying, in the receiving side, said bearer frames after the third bearer frame by a period  $2T-C$  and outputting said bearer frames.

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7. The bearer integration method as claimed in claim 1, wherein a point of delay allocation between the sending side and the receiving side corresponds to frame offset timing of a system.

8. A bearer integration method for integrating a plurality of bearer services into a wireless channel by performing time-division multiplexing/demultiplexing, said bearer integration method comprising the steps of:

obtaining a delay margin DM which can be allocated between a sending side and a receiving side by subtracting a system delay from the maximum allowable delay defined by service quality;

when  $DM \geq 2T$  in which T is a reference frame period, performing a bearer integration method comprising the steps of: delaying input bearer service data by two frame period by allocating delays A ( $0 \leq A \leq T$ ) and A' ( $=2T-A$ ); and integrating said bearer service data into a wireless channel in which delays T+B ( $0 \leq B \leq T$ ) and B' ( $=T-B$ ) are allocated, or, performing a bearer integration method for integrating bearer services in which each bearer service has different delay allocation such as A ( $0 \leq A \leq T$ ), A' ( $=2T-A$ ) and B ( $0 \leq B \leq T$ ), B' ( $=2T-B$ ) into a wireless channel C having delay allocation of T+C ( $0 \leq C \leq T$ ) and C' ( $=T-C$ );

when  $T \leq DM < 2T$ , performing a bearer integration method comprising the steps of: delaying input bearer service data by one frame period by allocating delays A ( $0 \leq A \leq T$ ) and A' ( $=T-A$ ); and integrating said bearer service data into a wireless channel with another bearer service data in which

delays  $B$  ( $A \leq B \leq T$ ) and  $B' (=T-B)$  are allocated; and  
when  $DM < T$ , performing a bearer integration  
method in which no delay is allocated between the  
sending side and the receiving side.

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9. The bearer integration method as  
10 claimed in claim 8, further comprising the step of:  
determining a bearer integration method to  
be performed by checking conditions in order of  $DM \geq$   
 $2T$ ,  $T \leq DM < 2T$ ,  $DM < T$ .

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10. The bearer integration method as  
claimed in claim 8, further comprising the step of:  
20 storing a bearer integration method used  
before;  
determining a bearer integration method to  
be used according to said bearer integration method  
which is stored.

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11. The bearer integration method as  
30 claimed in claim 10, further comprising the step of:  
when a delay margin of a bearer service to  
be integrated is smaller than a delay due to said  
bearer integration method which is stored,  
selecting a bearer integration method which has a  
35 delay suitable for said delay margin of said bearer  
service to be integrated.

12. A communication apparatus in a wireless communication system which integrates a plurality of bearer services into a wireless channel by performing time-division  
5 multiplexing/demultiplexing, said communication apparatus comprising:  
a send delay adding part which synchronizes with reference frame timing, delays one or more bearer service data input before bearer  
10 integration timing up to each frame offset timing, and delays a plurality of bearer service data input after bearer integration timing up to frame offset timing for bearer integration; and  
a bearer data multiplexing part which  
15 time-division multiplexes a plurality of bearer service data output from said send delay adding part.

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13. A communication apparatus in a wireless communication system which integrates a plurality of bearer services into a wireless channel by performing time-division  
25 multiplexing/demultiplexing, said communication apparatus comprising:  
a bearer data separation part which time-division demultiplexing data of bearer integration received via a wireless channel; and  
30 a receive delay adding part which delays one or more bearer service data input before bearer integration timing up to reference frame timing, and delays each bearer service data output from said bearer data separation part after bearer integration  
35 timing up to frame offset timing.